

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH

WALTER M. DICKIE, M.D., DIRECTOR

Weekly



Bulletin

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GUY P. JONES
EDITOR

Pollution May Travel Far in the Ground.

The Connecticut State Department of Health has recently published an interesting bulletin upon the subject of distance that pollution may travel in the ground. The department states that this is a favorite question put to health officials, particularly by persons who have on their property wells which are close to privies, cesspools, barn drainage, etc. The results of experiments conducted by the United States Public Health Service in North Carolina are cited.

One of these experiments was for the purpose of determining the travel of pollution where direct contact with ground water occurs. This was accomplished by digging a shallow trench extending to the ground water and inserting sewage pollution by cow manure and human excreta, together with a chemical dye. A number of wells were put down in close proximity, and careful observations of the appearance of *B. coli* and chemical pollution in these wells were made. Other experiments were carried out by introducing pollution in trenches above the ground water and pouring in water to wash the pollution down to the ground water level. As might be expected, the pollution traveled only in the direction of flow of ground water, usually, but not always,

the same as the ground slope. No bacteriological or chemical pollution was discovered on the upstream ground water side of the polluted trenches. On the downstream side, bacterial pollution, as shown by the presence of *B. coli* traveled distances varying from 1 to 232 feet, while the dye could be traced for a distance of 450 feet. It was determined that the pollution traveled in the direction of ground water flow in a narrow belt, usually smaller than the width of the polluted source, and as the width of a privy, instead of spreading out fan shaped. It is apparent, therefore, that the greater distance away a well is located from a source of pollution, the less is the probability of intercepting the pollution.

It was found that as the ground water table lowers, due to dry weather, most of the bacterial and chemical contamination filtered out into the top edge of the water zone and became stranded in the dry soil. With the continuance of dry weather, the bacteria died. If, however, wet weather brought a rise in the ground water level, the pollution was carried upwards and spread. A subsequent drop of the water level would result in stranding the pollution still higher. It would seem, therefore, that alternating dry and wet weather furnishes a natural means of purification. Wet weather,

of course, tends to wash pollution into the ground water which supplies wells. It is of interest that water washed into trenches containing pollution carried *B. coli* through sand for a distance of five feet below the trench bottom into the ground water.

Many arbitrary distances as to separation between water supplies and sewage disposal systems have been adopted. Experience would indicate that less than fifty feet is dangerous and that one hundred feet is preferable. The experiments cited indicate that pollution can travel for greater distances in sandy soil. Although pollution does not travel against the direction of ground water flow, pumping might change the direction of flow. In some formations where large crevices occur, pollution has been known to travel for miles.

According to the Connecticut State Department of Health, the moral of this discussion is to locate wells as far as possible from sources of pollution, provide water-tight excreta containers where possible, and in general, to locate wells on higher ground than surrounding sources of pollution. Arbitrary safe distances are difficult to establish because of the great variation in conditions. From the results of these experiments it is indicated that the most dangerous pollution zone is between the level of highest ground water and about one foot or less below lowest ground water. It would seem, therefore, that leaks in a well pipe passing through this zone are particularly dangerous. Deep burial of excreta also appears from these experiments to be more dangerous than burial high above the ground water table.



Proper Feeding of Child Is Necessary.

It is a wise parent who knows what to feed a child. With the wide range of foodstuffs that are available and the general financial ability of the American people to buy necessary foods there would seem to be no excuse for any child not to be fed properly. As a matter of fact, it has been found that children of well-to-do parents may suffer to a greater extent from malnutrition than children of poor parents. Children who are pale and frail, who have flabby muscles and whose dispositions are irritable are generally suffering from a lack of proper nutrition. They can not be

expected to compete in school with cheerful and contented children who are properly fed. Children who are malnourished have low resistance to disease and when they enter school they are more apt to contract the communicable diseases. Furthermore, children who are very much under weight are often retarded in their development and are backward in their studies.

In the conferences to be held in connection with the summer round-up of the Parent-Teacher associations and the Bureau of Child Hygiene of the California State Department of Public Health, medical examiners who are skilled in nutritional subjects will advise parents regarding the proper feeding of children who may be undernourished. It is important that fathers and mothers should know what are the proper foods for their children. Knowledge is all that is required in most cases and if parents are properly instructed in this important matter, their children will profit greatly thereby.



Sunshine And Skylight.

Several investigators, according to the Children's Bureau of the U. S. Department of Labor, have recently made studies in the relative values of skylight and sunshine. Skylight is the reflected light from the sun and, according to the report of the investigations made, it produces an anti-rachitic effect which is about one-half to two-thirds of that produced by the available sunlight, which includes the reflected light from the sky. It is stated, upon the basis of the results of these investigations, that infants may be placed out of doors protected from the direct sunlight and still receive considerable antirachitic effect from the reflected ultraviolet rays of the sky.

The ultraviolet content of skylight alone has been measured by Dr. C. H. Best of the University of Toronto. He has also measured the ultraviolet content of the available sunlight, which includes the reflected light from the sky. These measurements were made during the last week of April and the first week of May. It was found that the ultraviolet content of skylight alone is about 60 per cent of the ultraviolet content of sunlight. Studies have also been made re-

cently of the antirachitic effect of the sun's rays, including skylight, through a number of the new types of windowglass which have recently been placed upon the market and which are supposed to pass ultraviolet rays freely. The investigations show that but 25 per cent to 50 per cent of the antirachitic effect obtained without the use of glass is obtained with these special glasses. No obvious difference between the various makes was found. No antirachitic effect, or at most, a decidedly negligible effect, is produced by the sun's rays through ordinary window glass. The antirachitic effect of skylight through the special glass and through an open window covered with ordinary fly screen were practically the same, almost negligible. In order to obtain much benefit from the rays of the sun through an open window or a window glazed with the new special glass, it is necessary to receive the direct rays of the sun. It is said that the use of the special glass during the winter months is probably of little value, in the northern latitudes, at least.

Tuberculosis Bureau Reports County Progress.

The Bureau of Tuberculosis of the California State Department of Public Health reports marked progress in the construction of new county buildings for the care of tuberculous patients.

In January, the Santa Clara County Board of Supervisors made an appropriation of \$50,000, not to exceed \$60,000, if necessary, for the construction of a forty-bed preventorium to be located on a site near enough to the general hospital to facilitate administration, by the superintendent, but far enough away from that institution to be removed from the hospital atmosphere.

A full-time medical director has been obtained for the Tuberculosis Department of the Santa Clara County Hospital. He was formerly a teacher in the Trudeau School at Saranac and is accomplishing excellent work in the hospital.

The Los Angeles County Board of Supervisors has given approval for the construction of a \$200,000 fireproof infirmary of 80 beds to be located at the Olive View Sanatorium. This infirmary will have only private rooms and will be equipped to take

care of any surgical cases of tuberculosis and to perform any other type of treatment that may be necessary.

Approval has been given for the construction of the first unit of the Valencia Sanatorium for Orange County, this unit to cost \$40,000. The building now in use is to be remodeled into an infirmary for Mexicans in the advanced stages of tuberculosis. The Orange County Board of Supervisors plans to erect additional buildings as rapidly as they may be needed.

The Santa Cruz County Board of Supervisors, at their February meeting, voted unanimously to construct a tuberculosis pavilion. The board plans to extend its building program to fit future needs.

The new Bret Harte Sanatorium, San Joaquin County's institution for the care of its tuberculous, located at Murphy in Calaveras County, has recently been completed at a cost of \$200,000.



Dorris Has New Health Officer.

Dr. Paul P. Baron has been appointed City Health Officer of Dorris to succeed Dr. S. W. Cartwright.



"What the best and wisest parent wants for his own child, that must the community want for all its children."



MORBIDITY.*

Diphtheria.

127 cases of diphtheria have been reported, as follows: Alameda 1, Albany 1, Berkeley 4, Oakland 7, San Leandro 1, Fresno County 1, Eureka 1, Kern County 2, Los Angeles County 12, Compton 1, Glendale 5, Los Angeles 42, Pasadena 1, Pomona 3, Whittier 1, Monterey Park 1, San Rafael 1, Merced 2, Pacific Grove 1, Napa County 1, Orange County 2, Santa Ana 7, Ontario 1, San Bernardino 4, San Diego 4, San Francisco 11, San Mateo County 1, San Bruno 1, San Mateo 1, Santa Barbara 1, Santa Clara County 2, Gilroy 1, Siskiyou County 1, Benicia 1.

Scarlet Fever.

185 cases of scarlet fever have been reported, as follows: Alameda 3, Berkeley 8, Oakland 31, Contra Costa County 1, Fresno County 4, Fresno 3, Humboldt County 1, Eureka 1, Kern County 1, Bakersfield 1, Los Angeles County 8, Glendale 1, Hermosa Beach 2, Long Beach 3, Los Angeles 20, Monrovia 2, Pasadena 2, San Gabriel 1, Whittier 1, Lynwood 1, South Gate 1, Sausalito 1, Merced 1, Orange 2, Placer County 1, Sacramento 5, San Diego County 1, San Diego 14, San Francisco 39, San Joaquin County 1, Lodi 5, Stockton 5, San Luis Obispo County 4, San Mateo County 1, Santa Barbara County 1,

* From reports received on March 12th and 13th for week ending March 10th.

Santa Maria 1, Santa Clara County 1, San Jose 2, Vallejo 1, Stanislaus County 1, Fillmore 1, Marysville 1.

Measles.

284 cases of measles have been reported, as follows: Alameda 2, Berkeley 2, Oakland 3, Chico 1, Calaveras County 1, Angels Camp 4, Colusa County 1, Pittsburg 1, Fresno County 1, Fresno 12, Los Angeles County 16, Alhambra 4, Azusa 1, Burbank 2, Glendale 5, El Monte 5, Hermosa Beach 1, Los Angeles 76, Monrovia 3, Pasadena 2, Pomona 1, San Fernando 1, Monterey Park 1, Salinas 3, Orange 3, Placer County 1, Sacramento 6, San Bernardino 2, Oceanside 60, San Diego 1, San Francisco 40, Stockton 1, San Luis Obispo 1, Santa Barbara County 1, Santa Barbara 1, San Jose 4, Santa Cruz 3, Vallejo 2, Sonoma County 1, Santa Rosa 1, Stanislaus County 2, Yuba City 1, Dinuba 2, Yolo County 1, Marysville 1.

Smallpox.

19 cases of smallpox have been reported, as follows: Oakland 9, Los Angeles 1, Whittier 1, Santa Ana 1, San Diego County 1, Santa Clara County 1, Sonoma County 5.

Typhoid Fever.

6 cases of typhoid fever have been reported, as follows: Pittsburg 1, Pasadena 1, Sacra-

mento County 1, San Joaquin County 2, Santa Cruz County 1.

Whooping Cough.

164 cases of whooping cough have been reported, as follows: Alameda 4, Albany 2, Berkeley 3, Oakland 3, Fresno 2, Kern County 2, Los Angeles County 8, Alhambra 3, Compton 2, Glendale 2, Hermosa Beach 3, Long Beach 14, Los Angeles 10, Pasadena 3, Pomona 2, Lynwood 9, Monterey 7, Pacific Grove 3, Orange County 5, Orange 1, Santa Ana 5, Tustin 4, Corona 1, Redlands 1, San Diego County 2, San Diego 20, San Francisco 13, Stockton 9, San Luis Obispo County 7, San Mateo County 1, Los Gatos 4, Palo Alto 3, Dinuba 6.

Poliomyelitis.

6 cases of poliomyelitis have been reported, as follows: Los Angeles County 1, Los Angeles 2, Pomona 1, North Sacramento 1, Sonoma County 1.

Meningitis (Epidemic).

5 cases of epidemic meningitis have been reported, as follows: Los Angeles 1, San Diego 1, San Francisco 3.

Food Poisoning.

Los Angeles reported one case of food poisoning.

COMMUNICABLE DISEASE REPORTS.

Disease	1928				1927			
	Week ending			Reports for week ending Mar. 10 received by Mar. 13	Week ending			Reports for week ending Mar. 12 received by Mar. 15
	Feb. 18	Feb. 25	Mar. 3		Feb. 19	Feb. 26	Mar. 5	
Anthrax.....	0	1	0	0	0	0	0	0
Botulism.....	0	0	0	0	0	0	0	0
Chickenpox.....	522	572	726	799	985	856	879	711
Diphtheria.....	110	130	125	127	141	143	132	127
Dysentery (Bacillary).....	2	0	1	0	7	3	0	0
Encephalitis (Epidemic).....	0	0	2	0	1	2	3	2
Food Poisoning.....	0	0	0	1	4	0	0	0
German Measles.....	361	355	459	566	30	53	59	48
Gonococcus Infection.....	104	79	106	96	91	85	120	76
Influenza.....	56	55	61	48	67	79	104	86
Jaundice.....	0	0	0	0	3	1	3	0
Leprosy.....	0	1	0	0	0	0	1	0
Malaria.....	15	0	1	0	0	0	0	1
Measles.....	164	172	244	284	3011	3422	3993	3735
Meningitis (Epidemic).....	8	4	6	5	7	3	1	2
Mumps.....	289	247	306	313	230	251	299	319
Paratyphoid Fever.....	0	0	1	1	0	0	0	0
Pneumonia (Lobar).....	78	64	90	65	72	159	62	67
Poliomyelitis.....	7	7	9	6	2	3	1	0
Rabies (Animal).....	18	17	21	15	8	12	8	12
Rocky Mt. Spotted Fever.....	0	0	0	0	0	0	0	0
Scarlet Fever.....	253	242	200	185	293	255	242	246
Smallpox.....	21	49	32	19	31	31	16	17
Syphilis.....	157	93	95	159	143	128	156	125
Tetanus.....	0	0	0	1	1	0	1	0
Trachoma.....	5	4	3	4	17	0	23	2
Trichinosis.....	1	0	0	0	2	0	0	0
Tuberculosis.....	169	207	211	220	187	174	228	204
Typhoid Fever.....	12	12	8	6	5	4	7	3
Typhus Fever.....	0	0	0	0	0	0	0	0
Whooping Cough.....	157	142	168	164	121	117	139	157
Totals.....	2509	2453	2875	3084	5459	5781	6477	5940

CALIFORNIA STATE PRINTING OFFICE